GRACHEVA, V.P.

Reduction of atmospheric pressure to sea level based on the use of a barometric formula expressed by the geopotential. Trudy GGO no.43: 3-8 '54. (MIRA 11:5)

(Atmospheric pressure)

GRACHEVA, V.P.

SORKINA, A.I.; GRACHEVA, V.P.

Determining the properties of the thermal and turbulent regime of the atmosphere over the sea. Trudy GOIN no.38:26-33 '57. (MIRA 10:12)
(Atmosphere)

36-57-69-10/16

AUTHOR: Gracheva, V. P., Utina, Z. M., and Khineyko, N. P.

TITLE: Irrigation Standards for Different Climatic Conditions (Normy orosheniya dlya razlichnykh klimaticheskikh usloviy)

PERIODICAL: Trudy Glavnoy geofizicheskoy observatorii, 1957, Nr 69, pp. 71-76 (USSR)

ABSTRACT: The authors define the term "irrigation standards" as the amount of water needed to maintain the moisture content of soil at 60 to 70 percent. Consequently these standards vary with climatic and meteorological conditions. The authors analyze the interdependence of weather conditions and irrigation standards and refer to D. L. Laykhtman who in 1955 established a set of standards to be adhered to. The article contains 5 maps showing the application of these standards in the arid zones of the Soviet Union during the vegetation period. The standards are expressed in thousands of cubic meters (of water) per hectare. There are 3 figures, but no references.

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GRACHEVA, V.P.

Investigating the characteristics of the formation of fogs.
Trudy GGO no.94:149-155 '60. (MIRA 13:5)
(Fog)

AYZENSHTAT, B.A.; ANTROPOVA, U.I.; GRACHEVA, V.P.; OGNEVA, T.A.; SEROVA, N.V.

Thermal balance of the active surface. Trudy GGO no.107:34-43 '61.
(MIRA 14:10)

(Solar radiation)

GOROSHKO, B.B.; GRACHEVA, V.P.; RASTORGUYEVA, G.P.; RIKHTER, B.V.; FEDOROVA, G.A.

Meteorological observations in analyzing the industrial pollution of the ground layer of the atmosphere. Trudy GGO no.138:18-30 '63. (MIRA 17:2)

ACCESSION NR: AT4004717 S/2922/63/007/000/0108/0116

AUTHOR: Gracheva, V. P.; Solomatina, I. I.

TITLE: Diurnal change in absolute humidity in the surface boundary layer of the atmosphere

SOURCE: Vses. nauchn. meteorologich. soveshch. Trudy*, v. 7. Fizika prizemnogo sloya. Leningrad, 1963, 108-116

TOPIC TAGS: meteorology, absolute humidity, humidity, diurnal humidity variation, boundary layer humidity, turbulence, turbulent diffusion, temperature, air temperature, heat transfer, evaporation, atmospheric boundary layer, atmospheric turbulence

ABSTRACT: Diurnal changes in humidity in the surface boundary layer are examined by solving a combined system of equations for the turbulent diffusion of water vapor and the temperature on the ground and in the air, taking into consideration diurnal change in the exchange coefficient. The turbulence coefficient is thus expressed as two functions: one depending on time, the other on height. Because the surface boundary layer of the air is quasi-stationary, the deviations of humidity and temperature from the average daily values can be solved by the method

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of consecutive approximations of the Fourier series. For investigations of diurnal temperature changes, the turbulence coefficient is independent of time and equal to the average daily value. To determine the diurnal change in humidity, one must consider the variations in the exchange coefficient with time. The deviation of the humidity from its average daily value in the layer z=h is then expressed by the formula

$$q_1 = 2a \sum_{n=1}^{\infty} \left(\frac{1}{\sqrt{n}} \left[W_n' \cos\left(n\omega\tau - \frac{\pi}{4}\right) - W_n'' \sin\left(n\omega\tau - \frac{\pi}{4}\right) \right] + \right.$$
$$\left. + C\left(W_n' \cos n\omega\tau - W_n'' \sin n\omega\tau\right) \right), \qquad (1)$$

where

$$a = \frac{1}{\rho \sqrt{\omega k_2}}; \quad C = \frac{\sqrt{\omega k_1}}{k_1} \ln \frac{k_2}{z_0 + k_1 z};$$

k and k_2 are the average daily values of the exchange coefficient at the heights $z=1$ M, and $z=h_m$; W is the angular velocity of rotation of the earth;

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$W_n = W_n' + iW_n''$ is the harmonic for the Fourier series for the function $W(\vartheta) = \frac{V(\vartheta)}{k(\vartheta)}$; the functions $V(\vartheta)$ and $k(\vartheta)$ determine the changes in evaporation and the exchange coefficient with ϑ, where $\vartheta = \int_0^t k(t)dt$. The diurnal changes in the exchange coefficient and evaporation from the ground are determined by the first approximation. Equation (1) allows computations of diurnal humidity variations at various heights. It also can be used to determine the number of extremes in the diurnal humidity fluctuations by merely differentiating the expression for q and equating it to zero. The equation below expresses the number of extremes during the diurnal change of absolute humidity:

$$\frac{W_1'}{W_2'} = f(\tau), \qquad (2)$$

where $f(\tau) = \frac{\cos 2\omega\tau - \sin 2\omega\tau - 2C\sin 2\omega\tau}{\frac{1}{\sqrt{2}}(\sin\omega\tau - \cos\omega\tau) + C\sin\omega\tau}$

Thus, the number of extremes for a certain area and season is determined by the diurnal variations of the radiation balance. On the basis of the first approximation, the diurnal change in the exchange coefficient and evaporation, and

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ACCESSION NR: AT4004717

the relationship of $\frac{w_1}{w_2}$ can be found. The size of the latter determines the type of diurnal humidity change. Research into the problem of diurnal humidity changes is important for forecasting fogs and cloudiness. Since fogs are formed at night, knowledge of nighttime humidity changes is important. Contrary to former assumptions, the present investigation demonstrated such variations to be considerable. Nighttime humidity changes are determined primarily by the redistribution of the of the initial humidity profile. The role of dew is not very important. For a determination of the initial humidity profile, data on the changes in q are required. These can be calculated by means of:

$$q_1 = \psi_0 + 2\sum_{n=1}^{\infty} \psi'_n g'_n - \psi''_n g''_n, \qquad (3)$$

where

$$g'_n = \frac{A_1'}{\Delta_n}(C'_n r'_n + C''_n r''_n); \; g''_n = \frac{A_1'}{\Delta_n}(C'_n r''_n - C''_n r'_n);$$

$$\Delta_n = C'^2_n + C''^2_n; \; C'_n = A'_1 + \sqrt{\frac{n\omega}{2}}; \; C''_n = \sqrt{\frac{n\omega}{2}};$$

$$r(x_n) = e^{ix_n^2}\operatorname{erfc} x_n\sqrt{i}; \; x_n = \sqrt{\frac{n\omega k_2'}{k_2'^2}}; \; A_1' = \frac{k_2'}{\sqrt{k_2'}\ln\frac{k_1'}{z_0 + k_1' z}};$$

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Here: ψ_0 = the average daily humidity for the past 24 hours; ψ_n', ψ_n'' are the harmonics of the Fourier series as per the formula below:

$$\psi(\tau') = \psi_0 + 2\sum_{n=1}^{\infty}(\psi_n' \cos n\omega\tau' - \psi_n'' \sin n\omega\tau');$$

and k_2 and k_2' are the average values of the exchange coefficient in the layer $z \geqslant h$ in conformity with $\gamma > 0$ and $\gamma < 0$. The values of g_n' and g_n'' for various k_1, k_1', n and γ are computed. For practical purposes, these formulas are simplified for such items as: number of extremes, the more common values of k_1, k_1', etc. The article contains numerous such simplified formulas and explanations of how they affect the computation of the minimum nighttime humidity. In general, the expected minimum humidity is equal to the average value of the previous 24 hours. The expected variation for the night equals $\gamma_0 - \gamma_{av}$. Orig. art. has: 3 figures, 2 tables and numerous formulas.

ASSOCIATION: GGO.

SUBMITTED: 00 DATE ACQ: 27Dec63 ENCL: 00

SUB CODE: ES NO REF SOV: 008 OTHER: 000

Card 5/5

GRACHEVA, V.P.; [illegible], V.P.

Constancy of the wind direction in the ground layer of the atmosphere.
Trudy GGO no.158:41-45 '64. (MIRA 17:9)

L 01452-66 EWT(1)/FCC GW

ACCESSION NR: AT5019734 UR/2531/65/000/172/0042/0047 9 16

AUTHOR: Genikhovich, Ye. L.; Gracheva, V. P. 44,55 44,55 B+1

TITLE: Analysis of the dispersion of horizontal fluctuations in wind direction

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 172, 1965, Voprosy atmosfernoy diffuzii i zagryazneniya vozdukha (Problems of atmospheric diffusion and contamination), 42-47

TOPIC TAGS: wind, wind direction, wind fluctuation 12,44,55

ABSTRACT: In an analysis of continuous records of meteorological elements (such as wind direction or wind velocity), it is necessary to consider the mean values of these elements for short intervals and later analyze these values for some quite long period. In such a process, both the very small and very large frequencies are cut off from the frequency spectrum. This paper is an analysis of the dependence of the dispersion of meteorological values on the internal and external averaging intervals on the basis of theoretical considerations. The averaging method used by F. B. Smith (J. Roy. met. soc., Vol. 88, 376, 1962, 177) is summarized and applied by the authors; the work of J. Ogura (J. meteorol. 14, 1957, 9-17) in this field is also taken into account. The results obtained are in general agreement with an earlier paper by V. P. Gracheva and V. P. Lozhkina on the

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ACCESSION NR: AT5019734

stability of wind direction in the surface layer of the atmosphere (Tr. GGO, No. 158, 1964). For example, in Fig. 1 of the Enclosure, the value of the parameter $\Delta T/u_1^2$, characterizing atmospheric stability in the lower layer of the atmosphere, has been plotted along the x-axis and the mean value of σ (dispersion) for the summer or winter season has been plotted (in degrees) along the y-axis for a 20-minute averaging period. With an increase of instability when $\Delta T/u_1^2 > 0$ (temperature decrease with height) the values of σ increase in summer from 2 to 25°, whereas in winter they are almost constant and equal to 3-5°. When there is an inversion ($\Delta T/u_1^2 < 0$) in both winter and summer the average values of σ change insignificantly, approximately from 6-7 to 2-3°; the winter and summer values of σ are almost equal, in contrast to unstable states when σ in summer is several times greater than the winter values. The figures alongside the vertical lines denote the number of 20-minute periods used in constructing the curve for each interval of values $\Delta T/u_1^2$; the length of the vertical lines is a measure of the scattering of individual σ values from their mean value for the considered (winter or summer) seasons. With an increase in wind velocity to approximately 5-6 m/sec the σ values for all ΔT usually decrease, except in the case of winter inversions. With an increase of wind velocity above 6 m/sec, σ in both winter and summer changes very little (about 2°), except in unstable weather in summer when mean $\sigma = 3,5°$. Fig. 2 of the Enclosure shows the dependence of σ in summer, averaged for 2-hour time intervals, on the averaging period for different

L 01452-66
ACCESSION NR: AT5019734

stability conditions. It is shown that with a change in the external averaging period from 20 to 40 minutes the values of σ increase by 20% on the average under unstable conditions and by 35% under stable conditions; with a change in the averaging period from 40 to 60 min. the values increase by 15 and 25%, respectively. Orig. art. has: 11 formulas, 3 figures and 1 table.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00 NO REF SOV: 003 SUB CODE: ES

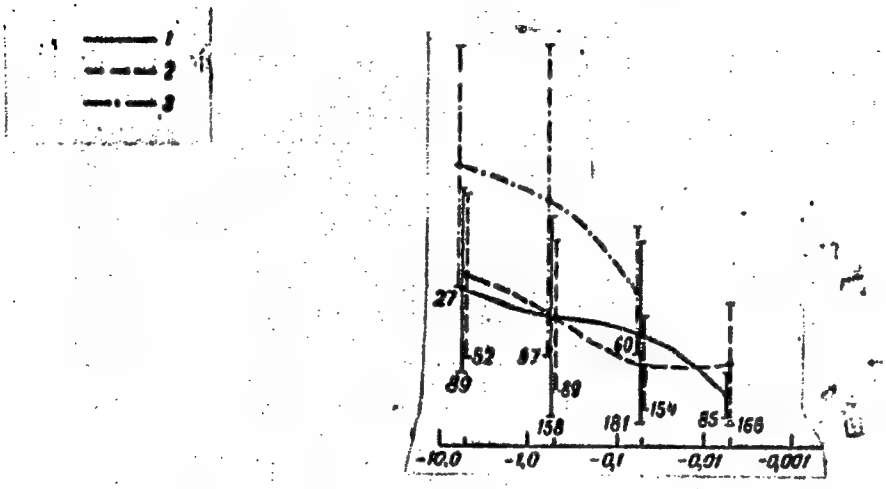
OTHER: 005 ENCL: 03

Card 3/6

L-01452-66

ACCESSION NR: AT5019734

ENCLOSURE: 01

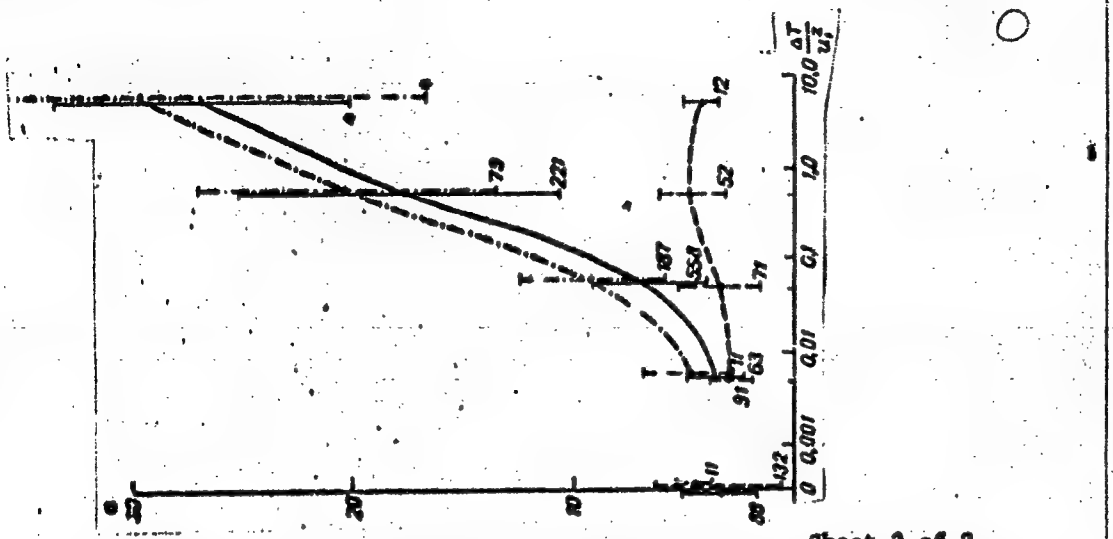


Sheet 1 of 2

Card 4/6

L 01452-66

ACCESSION NR: AT5019734 ENCLOSURE: 02



Sheet 2 of 2

Figure 1. Dependence of σ on stability: 1) 20-minute averaging period, summer data; 2) same, winter data; 3) 40-minute averaging period, summer data.

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L 01452-66

ACCESSION NR: AT5019734

ENCLOSURE: 03

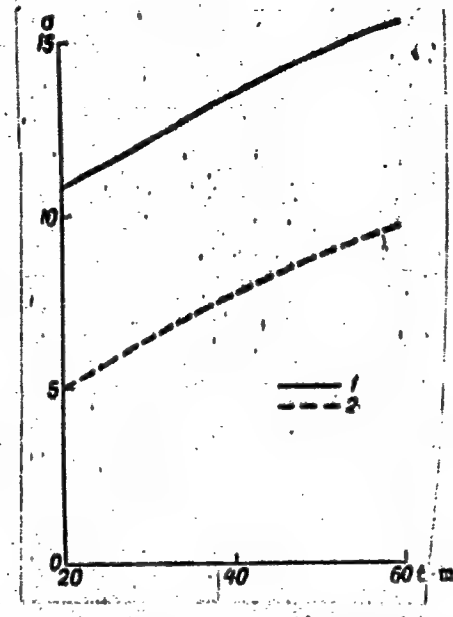

Figure 2. Dependence of σ on averaging period: 1) unstable conditions; 2) stable conditions.

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BELYASHOVA, M.A.; VASIL'CHENKO, I.V.; GRACHEVA, V.P.

Data on the forms of a smoke jet in relation to the characteristics of the structure of the boundary layer. Trudy GGO no.172:86-93 '65. (MIRA 18:8)

PETERBURGSKIY, A.V., dots.; Prinimali uchastiye: ASAROV, Kh.K., dots.; GUKOVA, M.M., assistent; KUDRIN, S.A., prof., retsenzent; PRONIN, M.Ye., prof., retsenzent; GRACHEVA, V.S., red.; BALLOD, A.I., tekhn. red.

[Laboratory manual on agricultural chemistry] Praktikum po agrokhimii. Izd.2., perer. i dop. Moskva, Sel'khozgiz, 1952. 438 p. (MIRA 16:8)
(Agricultural chemistry--Laboratory manuals)

VERBIN, Akim Akimovich, professor; KVASNIKOV, V.V., professor; KLECHETOV, A.N., professor; CHIZHEVSKIY, M.G., professor; GRACHEVA, V.S., redaktor; YEGOROV, V.Ye., spetsredaktor; PAVZNER, V.I., tekhnicheskiy redaktor

[Agriculture] Zemledelie. Moskva, Gos. izd-vo selkhoz. lit-ry, 1956. 270 p. (MLRA 10:1)
(Agriculture)

VOROB'YEV, Sergey Andreyevich; YEGOROV, V.Ye.; KISELEV, A.N.; CHIZHEVSKIY, M.G., professor, redaktor; GRACHEVA, V.S., redaktor; VESKOVA, Ye.I., tekhnicheskiy redaktor

[Manual for laboratory work on problems in agriculture] Rukovodstvo k laboratorno-prakticheskim zaniatiiam po zemledeliiu. Izd. 2-oe, perer. Pod red. M.G.Chizhevskogo. Moskva, Gos. izd-vo selkhoz. litry, 1956. 326 p. (MLRA 9:9)
(Agriculture--Study and teaching)

GRACHEVA, V.S.

PODGORNYY, Pavel Il'ich, prof., doktor sel'skokhozyaystvennykh nauk; GRACHEVA, V.S., red.; SOKOLOVA, N.N., tekhn.red.

[Plant growing] Rastenievodstvo. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 608 p. (MIRA 10:12)

(Field crops)

VERBIN, Akim Akimovich, prof.; KVASNIKOV, V.V., prof.; KLECHETOV, A.N., prof., CHIZHEVSKIY, M.G., prof.. Prinimalinchastiye: GOLIKOV, A.F., dotsent. GRACHEVA, V.S., red.; SOKOLOVA, N.N., tekhn.red.; FEDOTOVA, A.F., tekhn.red.

[Agriculture] Zemledelie. Izd.2, perer.i dop. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1958. 429 p. (MIRA 12:3)

1. Kafedra zemledeliya Moskovskoy sel'skokhozyaystvennoy akademii imeni K.A.Timiryazeva (for Golikov).
(Agriculture)

LYSOGOROV, Sergey Dmitriyevich, prof., doktor sel'skokhoz.nauk; GRACHEVA, V.S., red.; ZUBRILINA, Z.P., tekhn.red.

[Irrigation farming] Oroshaemoe zemledelie. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 359 p. (MIRA 13:10)
(Irrigation farming)

TIMOFEYEV, Nikolay Nikolayevich, prof.; VOLKOVA, A.A., dotsent; CHIZHOV, S.T., dotsent; EDEL'SHTEYN, V.I., pochetnyy akademik, retsenzent; KVASNIKOV, B.V., prof., retsenzent; GRACHEVA, V.S., red.; BALLOD, A.I., tekhn.red.

[Vegetable breeding and seed production] Selektsiia i semenovodstvo ovoshchnykh kul'tur. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1960. 478 p. (MIRA 14:2)

1. Vsesoyuznaya akademiya sel'skokhozyaystvennykh nauk im. V.I. Lenina (for Edel'shteyn).
(Vegetables)

ANDREYEV, Nikolay Gavrilovich, prof., doktor sel'skokhoz.nauk; GRACHEVA, V.S., red.; OZEROV, V.N., red.; PEVZNER, V.I., tekhn.red.

[Meadow cultivation] Lugovodstvo. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1961. 567 p. (MIRA 14:4)
(Pastures and meadows)

MAKSIMOVICH, Mikhail Mikhaylovich, prof., doktor sel'khoz. nauk;
GRACHEVA, V.S., red.; PROKOF'YEVA, L.N., tekhn. red.;
TRUKHINA, O.N., tekhn. red.

[Breeding of field crops and seed production] Selektsiia i semenovodstvo polevykh kul'tur. Moskva, Sel'khozizdat, 1962. 406 p.
(MIRA 15:7)
(Field crops) (Seed production) (Plant breeding)

SABUROV, Nikolay Vladimirovich, prof.; ANTONOV, Mikhail Vasil'yevich, dots.; GRACHEVA, V.S., red.; TRUKHINA, O.N., tekhn. red.

[Storing and processing fruit and vegetables] Khranenie i pererabotka plodov i ovoshchei. Moskva, Sel'khozizdat, 1962. 446 p. (MIRA 16:2)

(Fruit) (Vegetables)

PODGORNYY, Pavel Il'ich, prof., doktor sel'khoz. nauk; GRACHEVA, V.S., red.; PROKOF'YEVA, L.N., tekhn. red.

[Plant growing] Rastenievodstvo. Izdanie 2., perer. Moskva, Sel'khozizdat, 1963. 479 p. (MIRA 16:7)
(Field crops)

GORIN, A.P., prof.; DUNIN, M.S.; KONOVALOV, Yu.B.; MITROFANOVA, K.S.; POLITOVA, I.D.; SAMSONOV, M.P.; SELAVRI, M.K.; UKOLOV, A.A.; YURTSEV, V.N.; GRACHEVA, V.S., red.; [redacted] SOKOLOVA, N.N., tekhn. red.

[Manual on field work in the breeding and seed production of field crops] Rukovodstvo k prakticheskim zaniatiiam po selektsii i semenovodstvu polevykh kul'tur. [By] A.P.Gorin i dr. Moskva, Sel'khozizdat, 1963. 574 p. (MIRA 16:12)

1. Kollektiv prepodavateley kafedry genetiki, selektsii i semenovodstva polevykh kul'tur Moskovskoy sel'skokhozyaystvennoy akademii im. K.A.Timiryazeva (for Gorin, Konovalov, Mitrofanova, Samsonov, Selavri, Ukolov, Yurtsev). 2. Kafedra Fitopatologii Moskovskoy sel'skokhozyaystvennoy akademii im. K.A.Timiryazeva (for Dunin). 3. Kafedra statistiki Moskovskoy sel'skokhozyaystvennoy akademii im. K.A.Timiryazeva (for Politova).

(Field crops) (Seed production)

ANDREYEV, Nikolay Gavrilovich, prof., doktor sel'khoz. nauk, zasl. deyatel' nauki i tekhniki RSFSR; GRACHEVA, V.S., red.; KOZLOVSKAYA, M.D., tekhn. red.; DEYEVA, V.M., tekhn. red.

[Agronomy] Agronomiia. Izd.2., perer. Moskva, Sel'khoz-izdat, 1963. 487 p. (MIRA 17:2)

ZAKHAROV, S.S., doktor sel'khoz. nauk, prof.; LARIONENKO, V.B., kand. sel'khoz. nauk; NOVIKOVA, V.K.; TIMOFEYEV, A.F., kand. sel'khoz. nauk, dots.; SKOROPANOV , S.G., akademik, red.; GRACHEVA, V.S., red.; MAKHOVA, N.N., tekhn. red.; TRUKHINA, O.N., tekhn. red.

[Fundamentals of agriculture and land improvement operations] Osnovy zemledeliia i kul'turtekhnicheskie raboty. [By] S.S.Zakharov i dr. Moskva, Sel'khozizdat, 1963. 278 p. (MIRA 17:1)

1. Prepodavatel' Pinskogo gidromeliorativnogo tekhnikuma (for Novikova). 2. Akademiya nauk Belorusskoy SSR (for Skoropanov).

PRUTSKOV, F.M., kand. sel'khoz. nauk, dots.; RUBTSOVA, V.P., kand. sel'khoz. nauk; KRYUCHEV, B.D., prepodavatel'; GRACHEVA, V.S., red.; BYKOVA, M.G., red.

[Plant growing] Rastenievodstvo. Moskva, Izd-vo "Kolos," 1964. 525 p. (MIRA 17:7)

KARPENKO, P.V., doktor sel'khoz. nauk, zasl. deyatel' nauki RSFSR; KULESHOV, N.N., akademik, retsenzent; ORLOVSKIY, N.I., prof., retsenzent; PILIPETS, G.V., prof., retsenzent; IVANOV, S.Z. prof., retsenzent; GRACHEVA, V.S., red.

[Sugar-beet growing] Sveklovodstvo. Izd.3., perer. Moskva, Kolos, 1964. 307 p. (MIRA 17:10)

GRACHEVA, Ye. G.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1957
AUTHOR GRACEVA,E.G., CHUSAINOVA,S.G.
TITLE The Determination of the Tritium Content in Liquids.
PERIODICAL Atomnaja Energija, 2, fasc.1, 70-70 (1957)
Issued: 3 / 1957

When determining the tritium content in liquid samples the tritium is introduced into the ionization chamber as a component of the gas or vapor obtained by chemical decomposition. Such methods are described in literature (V.BOČKAREV et al: the Measuring of the Activity of the Sources of β- and α-Radiations, 1953)

If, besides tritium, no other radioactive elements are contained in the liquid to be analyzed, it is possible to use the bremsstrahlung caused by the β-particles of the tritium in the material of the sample for measuring. For this purpose it is sufficient to place a thin layer of the liquid to be examined before the "thinness counter (?) (or "thin counter ?), the pulses of which can be counted by means of the device.

As measurements showed it is possible in this way to determine tritium in some millimeters of water with a content of 10^{-4} curie/l and more.

Annular counters (?) with a window of about 4 mg/cm^2 thickness and a diameter of up to 40 mm were used. A layer of water which was not higher than 1,5 cm, was poured into a small glass with an aluminium lid of 18 micron thickness.

Atomnaja Energija, 2, fasc.1, 70-70 (1957) CARD 2 / 2 PA - 1957

This lid prevented the apparatus from being dirtied by vapors.

The quantity of tritium in the sample is found by comparing the effect exercised by the sample to be measured and by a liquid sample the tritium content of which is known, upon the counter.

This is a translation of a short report.

INSTITUTION:

ABEL'SKAYA, N. B.; GRACHEVA, Ye. G.; YERSHOVA, Z. V.; ZVEREV, V. S.; MASLOVSKAYA, V. V.; RUDAYA, L. Ya.

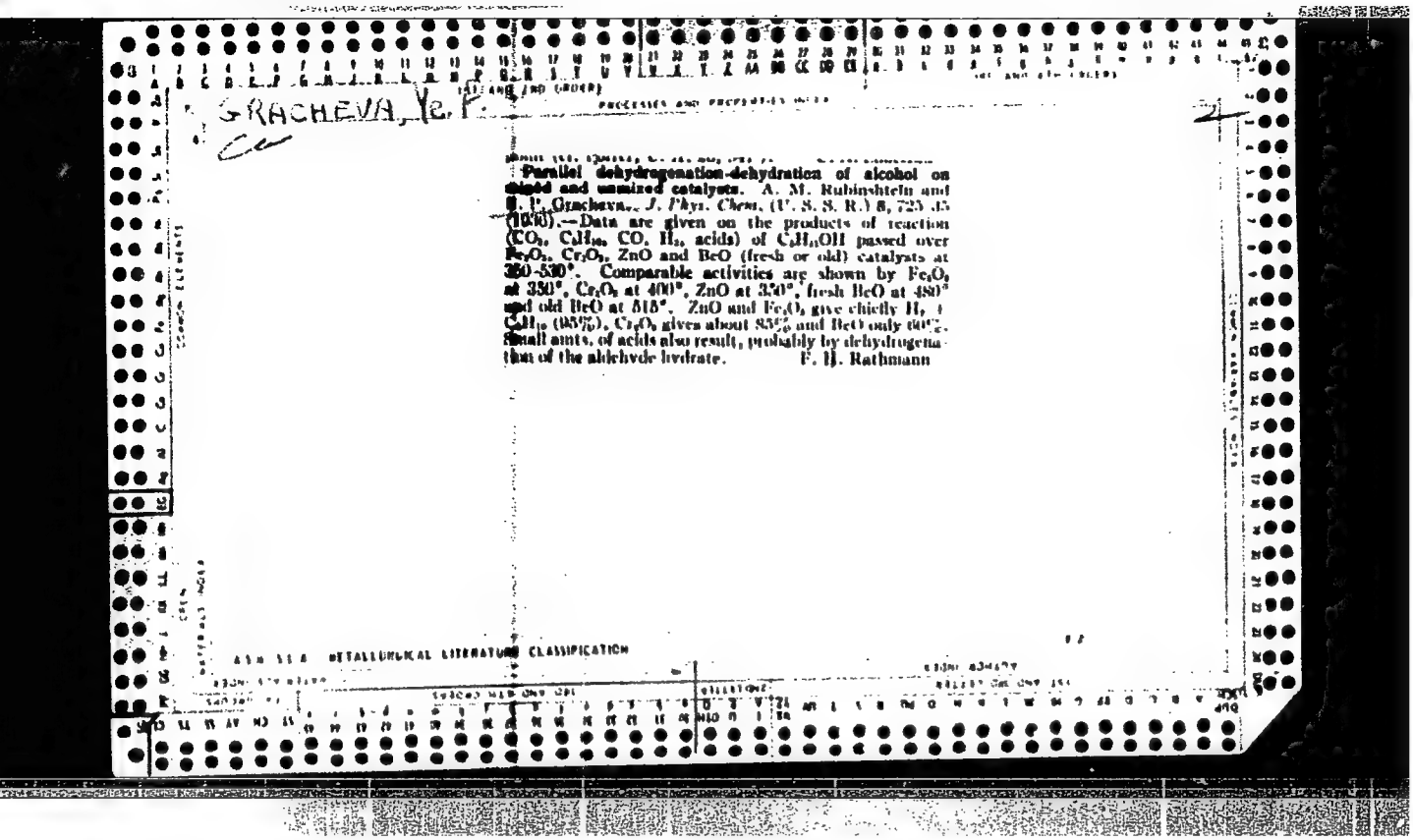
Preparation of long-lived Bi^{210}. Radiokhimiia 4 no.3:377-378 '62. (MIRA 15:10)

(Bismuth--Isotopes)

GRACHEVA, Ye.I.

TITOVA, A.I.; GRACHEVA, Ye.I.; TRET'YAKOVA, B.M.; MECHKOVSKAYA, M.P.

Reducing morbidity and mortality among children in the Pediatric Clinical Hospital and throughout Kirov District in Yaroslavl'. Vop.okh.mat. i det. 3 no.3:81-84 My-Je '58. (MIRA 11:5)
(YAROSLAVL'--CHILDREN--DISEASES)



GRACHEVA, Ye. P.

Parallel dehydrogenation-dehydration of alcohol on oxidized and unoxidized catalysts. A. M. Rubinshtein and E. P. Gracheva. *J. Phys. Chem.* (U. S. S. R.) 8, 725-45 (1936).—Data are given on the products of reaction (CO_2, C_nH_{2n}, CO, H_2, acids) of C_2H_5OH passed over Fe_2O_3, Cr_2O_3, ZnO and BeO (fresh or old) catalysts at 350-530°. Comparable activities are shown by Fe_2O_3 at 350°, Cr_2O_3 at 400°, ZnO at 370°, fresh BeO at 480° and old BeO at 515°. ZnO and Fe_2O_3 give chiefly H_2, C_nH_{2n} (85%), Cr_2O_3 gives about 85% and BeO only 60%. Small amts. of acids also result, probably by dehydrogenation of the aldehyde hydrate. F. H. Rathmann

GRACHEVA, E.P., i SHOSTAKOVSKIY, M.F.

24954 Shostakovskiy, M.F. i Gracheva, E.P. O Reaktsii Vinilirovaniya Glitserina. Zhurnal Obshchey Khimii, 1949, Vyp. 7, S 1250-56--Bibliogr: c.1256

So: Letopis' No 33, 1949

M Tsellyuloznaya Promyshlennost' Bumazhnaya Promyshlennost'

GRACHEVA, Yu. P.

Vinylation of glycerol. M. F. Shostakovskii and R. P. Gracheva. *Zhur. Obshchei Khim.* (J. Gen. Chem.) 19, 1250–4 (1949).—Passage of C_2H_2 at 10 atm. with agitation into 200 g. glycerol and 20 g. powd. KOH at 180–90° in an autoclave, with repeated C_2H_2 addn. until absorption stopped (12 repetitions in a 3-l. vessel) gave 90.3% *glyceryl trivinyl ether*, b_{760} 104–5°, d_4^{20} 1.0335, n_D^{20} 1.4381, which on shaking with 5% H_2SO_4 25–30 min. is hydrolyzed to AcH and glycerol. If the amt. of C_2H_2 is reduced to 50% of the theoretical, the same reaction yields a mixt. (amts. unstated) of the above trivinyl ether, b_7 58°, with the *1,3-divinyl ether*, b_7 83–4°, d_4^{20} 1.0521, n_D^{20} 1.4430, and (presumably) the *1-vinyl ether*, b_7 128–30°, d_4^{20} 1.1281, n_D^{20} 1.4521; the last two are easily hydrolyzed by dil. H_2SO_4, while hydrogenation over Ni at room temp. gave glyceryl 1,3-di-Et and 1-Et ethers, resp. The monovinyl ether (7 g.) undergoes some resinification on distn., while traces of HCl at room temp. yield $ROCH_2CH.O.CHMe.O.CH_2$ (I) (R = *H*), b_7 97–9°, d_4^{20} 1.1304, n_D^{20} 1.4441, which also forms in part during the above distn.; it is possible that $CH_2.O.CHMe.O.CH_2.CHOH$ also forms. Distn. of the 1,3-divinyl ether *in vacuo* yields the *1,2-acetal of glyceryl 3-vinyl ether* (I, R = $CH_2{:}CH$), also formed by the action of traces of HCl at room temp., b_7 75–6°, d_4^{20} 1.0790, n_D^{20} 1.4397. The mono- and the divinyl ethers are stable to alk. reagents, however. The cyclization-acetal formation probably goes via H-bond formation between the O of the original ether and H of the acid catalyst, or via an intramol. H-bond.

G. M. Kosolapoff

GRACHEVA, Ye. P.

Chem Abs
1-48 25 Jan 54

Organic Chem

Decomposition of benzoyl peroxide in the medium of some vinyl compounds. M. F. Shostakovskii, E. P. Gracheva, and V. A. Neterman. *Zhur. Obshchei Khim.* 23, 51–60(1953).—Bz_2O_2 (12 g.) in 72.1 g. CH_2:CHOAc and 120 g. petr. ether heated to 86–7.5° in N atm. over 5 hrs. gave 0.7480 g. O, 0.0384 g. CO_2, and 0.0306 g. H_2O, with 94.33% decompn. leading to O formation. The secondary source of CO_2 appears to be destructive oxidation of CH_2:CHOAc. Similar reaction in the presence of CH_2:$CMeCO_2Me$ gave 0.4043 g. O, 0.0171 g. CO_2, and 0.0342 g. H_2O, while the reaction in the presence of PhCH:CH_2 gave 0.0738 g. CO_2. The reaction in the presence of CH_2:CHOAc gave some BzOH, polyvinyl acetate, AcOH, and AcH. With CH_2:$CMeCO_2Me$ the by-products included polymethyl methacrylate, while the reaction in the presence of PhCH:CH_2 run similarly at 86° gave only 3.38% decompn. of the peroxide to CO_2. Heating 100 g. BuOCH:CH_2 and 12 g. Bz_2O_2 38 hrs. gave 97.7 g. unchanged BuOCH:CH_2 and 4.7 g. product, b_{18} 74–5°, n_D^{25} 1.4040, d_{25} 0.8260, and 18.1 g. viscous solid, besides 3.75 g. BzOH. The distd. product analyzed as $C_{10}H_{18}O_2$. Thus peroxides like Bz_2O_2 serve as supply of both free radicals and O, the latter being able to serve as a chain initiator in polymerization reactions of vinyl deriv. present in the system. Vinyl ethers are not polymerized by these means as they are not polymerized by atm. O.

G. M. Kosolapoff

SHOSTAKOVSKIY, M.F.; GRACHEVA, Ye.P.

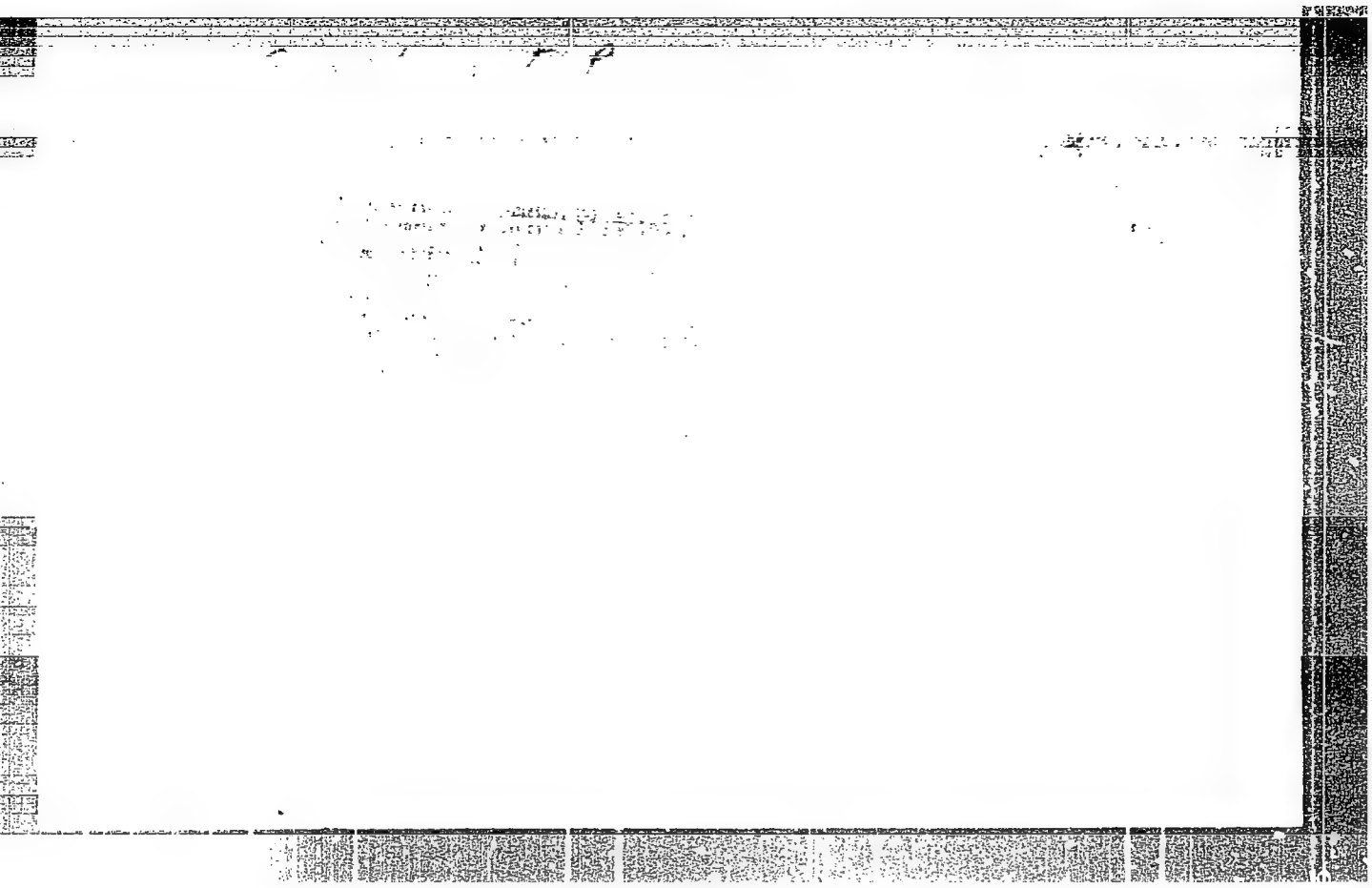
Investigation in the field of synthesis and conversions of substituted vinyl ethers. Part 1. Synthesis of α-substituted vinyl ehters. Zhur.ob. khim. 23 no.7:1153-1158 Jl '53. (MLRA 6:7)

1. Institut organicheskoy khimii Akademii Nauk SSSR. Laboratoriya vinilovykh efirov. (Ethers) (Vinyl derivatives)

GRACHEVA, E. P.

Synthesis and transformations of α-methylvinyl butyl ether. II. M. F. Shostakovskii and E. P. Gracheva. *Zhur. Obshchei Khim.* 23, 1320-3(1953); cf. *C.A.* 47, 12217e.—Heating 111 g. BuOH, 50 g. $MeC{:}CH$, and 10 g. powd. KOH in an autoclave 14 hrs. at 248–50° (58 atm. max. pressure) gave 75.8% $CH_2{:}CMeOBu$, b_{760} 111–12°, $n^{20}D$ 1.4111, d_{20} 0.7955. When shaken 1 hr. with 1% H_2SO_4, it is completely hydrolyzed, yielding Me_2CO. The ether (11.4 g.) and 7.4 g. BuOH stirred 30–40 min. and treated with 2 drops concd. HCl reacted exothermically and distn. of the mixture gave 81% $Me_2C(OBu)_2$, b_{11} 70°, $n^{20}D$ 1.4150, d_{20} 0.8363. This is completely hydrolyzed by shaking 1 hr. with 1% H_2SO_4, yielding Me_2CO. G. M. Kosolapoff

Inst. Org. Chem., AS USSR



APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000516510018-4"

Gracheva, Ye. P.

AUTHORS: Shostakovskiy, M. F., and Gracheva, Ye. P. 79-2-17/58

TITLE: Synthesis and Conversion of Alpha-Methylvinyl Ethers of Iso-Alcohols and Ethylene Glycol. Part 5. (Sintez i prevrashcheniye alfa-metil-vinilovykh efirov izospirtov i etilenglikolya. V.)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, vol 27, No 2, pp. 355-359 (U.S.S.R.)

ABSTRACT: The purpose of this experiment was to study the synthesis and certain properties of alpha-methylvinylisoalkyl ethers and alpha-methylvinyl ethers of ethylene glycol. The reaction between methylacetylene and isopropyl, isobutyl, isoamyl alcohols in the presence of powdered potassium hydroxide led to the formation of homologous substituted vinyl ethers. The reaction of methylacetylene with ethylene glycol in the presence of KOH resulted in the formation of monovinyl ether ethylene glycol which under conditions of the high reaction temperature isomerized into cyclic ketal. The latter phenomenon is explained by the fact that the reaction of the addition of ethylene glycol to the acetylene takes place at 130 - 140° while the addition of ethylene

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Synthesis and Conversion of Alpha-Methylvinyl Ethers of Iso-Alcohols and Ethylene Glycol. Part 5.

glycol to methylacetylene takes place at 170 - 180°. The structure of alpha-methylvinylisoalkyl ethers was determined by hydrolysis with 2% H_2SO_4. The hydrolysis products are described.

The conditions leading to the polymerization of alpha-methylvinyl-ethyl, isopropyl, isobutyl ethers with the $FeCl_3$ catalyst were established.

1 table. There are 9 references, of which 7 are Slavic

ASSOCIATION: USSR Academy of Sciences.

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress

Card 2/2

AUTHORS: Shostakovskiy, M. F., Gracheva, Ye. P., 79-28-5-28/69
Kul'bovskaya, N. K.

TITLE: Investigations in the Field of the Synthesis and Conversions of Substituted Vinylethers (Issledovaniye v oblasti sinteza i prevrashcheniy zameshchennykh vinilovykh efirov)
VI. Synthesis of α-Methylvinylarylether and of α-Methylvinylcyclohexylether (VI Sintez α-metilvinilarilovykh i α-metilviniltsiklogeksilovogo efirov)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 5, pp. 1253-1257 (USSR)

ABSTRACT: In face of certain unclear problems of the syntheses of α-methylvinylarylether carried out by Ruhemann, Wragg (Rueman i Vreg) on the one hand (reference 1) and Niederl, Storch (Niderl i Storkh) (reference 2) on the other hand, this paper investigates more detailed the synthesis of α-methylvinylarylether and of α-methylvinylcyclohexyl-ether according to Favorskiy-Shostakovskiy.

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Investigations in the Field of the Synthesis and Conversions of Substituted Vinylethers. VI. Synthesis of α-Methylvinylarylether and of α-Methylvinylcyclohexylether

79-28-5-28/69

$$CH_3-C\equiv CH+HOAr \xrightarrow[200\text{-}220^\circ]{KOH} CH_2=\underset{\displaystyle CH_3}{\overset{|}{C}}-OAr$$

The use of methylacetylene as vinylation medium yields less than that of acetylene in the vinylation of phenols (references 3, 4). This method is, however, the best accessible in the synthesis of the above mentioned ethers. The best results (yield and better avoidance of resinification) was obtained at a ratio of 1 molecule of phenol and 1 molecule of caustic potash (table 1). It was of interest to investigate the part of the allene (propadiene) in this vinylation reaction with methylacetylene. The allene is contained in the initial product (reference 5) and is the result of an isomerization $CH_3C\equiv CH \rightleftharpoons C=CH_2$. According to Favorskiy (reference 6)

Card 2/4 the isomerization of the acetylene-and allene hydrocarbons

Investigations in the Field of the Synthesis and Conversions of Substituted Vinylethers. VI. Synthesis of α-Methylvinylarylether and of α-Methylvinylcyclohexylether

79-28-5-28/69

belong to those being reversible. In the present case the equilibrium is displaced toward methylacetylene (at 200° - 10% allene against 90% methylacetylene!). In order to explain the role of allene under the given conditions it was heated to 200°C in the autoclave with 50% caustic potash solution, in which case the allene converted into the methylacetylene which was separated in form of acetylenide. From table 2 can be concluded that in the vinylation of the phenols with allene and methylacetylene the allene can not be considered as vinylation medium, but that it is isomerized to methylacetylene which then supplies the actual vinylation medium. The structure of the synthetized α-methylsubstituted ether was proved by hydrolysis. There are 3 tables and 16 references, 12 of which are Soviet.

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Investigations in the Field of the Synthesis and Conversions of Substituted Vinylethers. VI. Synthesis of α-Methylvinylarylether and of α-Methylvinylcyclohexylether

79-28-5-28/69

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute for Organic Chemistry, AS USSR)

SUBMITTED: April 24, 1957

Card 4/4

SHOSTAKOVSKIY, M.F.; GRACHEVA, Ye.P.; KUL'BOVSKAYA, N.K.

Synthesis and conversions of α-substituted vinyl ethers. Part 7: Synthesis and conversions of α-chloroisopropyl aryl ethers. Zhur. ob. khim. 28 no.9:2341-2343 S '58. (MIRA 11:11)

1. Institut organicheskoy khimii AN SSSR.
(Ethers)

SHOSTAKOVSKIY, M.F.; GRACHEVA, Ye.P.; KUL'BOVSKAYA, N.K.

Synthesis and conversions of α-substituted vinyl ethers. Part 8: Various properties of α-methylvinyl aryl and α-methylvinyl cyclohexyl ethers. Zhur.ob.khim. 28 no.9:2344-2348 S '58. (MIRA 11:11)

1. Institut organicheskoy khimii AN SSSR.
(Ethers) (Vinyl compounds)

GRACHEVA, Ye.G.

(4) PHASE I BOOK EXPLOITATION SOV/2713

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Doklady sovetskikh uchenykh; polucheniye i primeneniye izotopov (Reports of Soviet Scientists; Production and Application of Isotopes) Moscow, Atomizdat, 1959. 388 p. (Series: Its: Trudy, vol. 6) 8,000 copies printed.

Eds. (Title page): G.V. Kurdyumov, Academician, and I.I. Novikov, Corresponding Member, USSR Academy of Sciences; Ed. (Inside book): Z.D. Andreyenko; Tech. Ed.: Z.D. Andreyenko.

PURPOSE: This book is intended for scientists, engineers, physicians, and biologists engaged in the production and application of atomic energy to peaceful uses; for professors and graduate and nongraduate students of higher technical schools where nuclear science is taught; and for the general public interested in atomic science and technology.

COVERAGE: This is volume 6 of a 6-volume set of reports delivered by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy held in Geneva from September 1 to 13, 1958. Volume 6 contains 32 reports on: 1) modern methods for the production of stable radioactive isotopes and their labeled compounds, 2) research results obtained with the aid of isotopes in the field of chemistry, metallurgy, machine building, and agriculture, and 3) dosimetry of ionizing radiation. Volume 6 was edited by: S.V. Levinskiy, Candidate of Medical Sciences; V.I. Prusakov, Candidate of Chemical Sciences; and V.V. Sedov, Candidate of Medical Sciences. See Sov/2081 for titles of volumes of the set. References appear at the end of the articles.

SONDAK, V.A.; GRACHEVA, Ye.P.

Protective effect of vitamin P and vinylin in radiation exposures.
Vit. res. i ikh isp. no.4:148-157 '59. (MIRA 14:12)

1. Institut biofiziki AN SSSR i Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(RADIATION PROTECTION) (VITAMINS--P)
(VINYL COMPOUND POLYMERS)

5(3) SOV/79-29-5-30/75

AUTHORS: Shostakovskiy, M. F., Gracheva, Ye. P., Kul'bovskaya, N. K.

TITLE: Investigation in the Field of the Synthesis and Transformation of Substituted Vinyl Ethers (Issledovaniye v oblasti sinteza i prevrashcheniy zameshchennykh vinilovykh efirov). 9. Formation and Nature of Resin-like Products Obtained in the Vinylation of Phenols (9. Obrazovaniye i priroda smoloobraznykh produktov, poluchayemykh pri vinilirovanii fenolov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1546-1549 (USSR)

ABSTRACT: The present paper deals with the investigation of the nature of products obtained in the reaction of methyl acetylene with phenol (Ref 3) on the example of resins. Resin-like products obtained in the vinylation of phenols with methyl acetylene in the presence of caustic potash and water differ from alkyl phenol-acetylene resins both with respect to their external form and their properties. Resin forming in connection with the vinylation of phenol with methyl acetylene is a liquid which is partly distilled in vacuum; its highest molecular weight amounts to 500. The quantity of the resin formed depends

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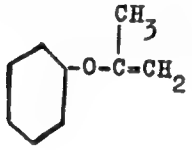
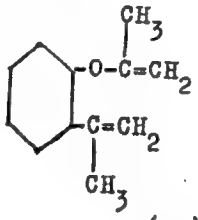
Investigation in the Field of the Synthesis and Transformation of Substituted Vinyl Ethers. 9. Formation and Nature of Resin-like Products Obtained in the Vinylation of Phenols

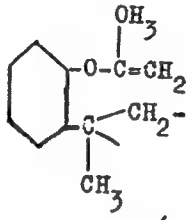
on the ratio methyl acetylene : phenol. The yield in resin increases with rising methyl acetylene content. The investigation of the distilled resin fractions by the aid of chemical and spectroscopic methods has shown that they are mixtures of the products (I - III).



(I)



(II)



(III)

The fraction boiling at 110-115° (3mm) represents the o-isopropenyl-isopropenylphenyl ether (II). This was confirmed by elementary analysis, hydrolysis, by the determination of the molecular fraction and by spectral analysis. Fractions that

Investigation in the Field of the Synthesis and Transformation of Substituted Vinyl Ethers. 9. Formation and Nature of Resin-like Products Obtained in the Vinylation of Phenols

are distilled at higher temperatures are mixtures of the polymer (III) of different polymerization degrees with the monomer. Ultraviolet and infrared spectra were taken at the opticheskaya laboratoriya IOKh AN SSSR (Optical Laboratory IOKh AS USSR) by B. V. Lopatin. There are 13 references, 3 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences, USSR)

SUBMITTED: March 12, 1958

5.3620

77354
SOV/79-30-1-15/78

AUTHORS: Kul'bovskaya, N. K., Gracheva, Ye. P., Shostakovskiy, M. F.

TITLE: Investigation of Synthesis and Conversions of Substituted Vinyl Ethers. X. Synthesis and Conversions of Propenyl Isopropenyl Phenyl Sulfides

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 81-86 (USSR)

ABSTRACT: Reaction of thiopenol with methylacetylene in alkaline medium yields a mixture of isopropenyl phenyl sulfide (I), bp 68-69° (6 mm), n_D^{20} 1.5690, and propenyl phenyl sulfide (II), bp 111-113° (20 mm), n_D^{20} 1.5849.

$$C_6H_5SH + CH_3-C\equiv CH \rightarrow \begin{cases} CH_2=C(CH_3)-SC_6H_5 & (1) \\ \text{(I)} & \\ CH_3CH=CHSC_6H_5 & (2) \\ \text{(II)} & \end{cases}$$

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Investigation of Synthesis and Conversions of Substituted Vinyl Ethers. X. Synthesis and Conversions of Isopropenyl Phenyl Sulfides

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The reactions (1) and (2) are nucleophilic additions. Sterically directed addition of thiol in reaction (2) results in only one stereoisomer. This was confirmed by oxidation of propenyl phenyl sulfide yielding only one crystalline propenyl phenyl sulfone, $CH_3CH{=}CHSO_2C_6H_5$ (III) (yield 77%), mp 69.5-70°. Isopropenyl phenyl sulfide was converted into isopropyl phenyl sulfone (IV) for identification.

$$CH_2{=}C(CH_3){-}SC_6H_5 \xrightarrow{H_2O_2} CH_2{=}C(CH_3){-}SO_2C_6H_5 \xrightarrow{H_2} (CH_3)_2CHSO_2C_6H_5$$

(IV)

Oxidation of isopropenyl phenyl sulfide yields (53%) isopropenyl phenyl sulfone, bp 142° (4.5 mm), n_D^{20} 1.5470. In contrast to crystalline sulfones obtained from propenyl phenyl sulfide, the isopropenyl- and isopropyl phenyl sulfones are oil-like substances. The absorption maxima of isopropenyl phenyl and propenyl phenyl sulfides are at 1,420 cm^{-1} and 970-960 cm^{-1}, respectively. Hydrolysis of propenyl and isopropenyl

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Investigation of Synthesis and Conversions of Substituted Vinyl Ethers. X. Synthesis and Conversions of Isopropenyl Phenyl Sulfides

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phenyl sulfides yields propionaldehyde and acetone, respectively. Decomposition of the obtained sulfides with alcoholic solution of mercuric chloride indicated that this reaction can be used for the quantitative determination of isopropenyl phenyl sulfide only. Upon mixing of isopropenyl phenyl sulfide with a mercuric chloride solution, phenylmercuric chloride precipitates in 30 seconds and 95% HCl is recovered by titration in 24 hours. Reaction of propenyl and isopropenyl phenyl sulfides with thiophenol in the presence of a free radical catalyst yields (82%) the same compound in both cases, 1,2-diphenylmercaptopropane, $C_6H_5SCH_2CH(CH_3)SC_6H_5$ (V), bp 197-198° (7 mm), n_D^{20} 1.6218. When ethylmercaptan is used, it reacts with (I) and (II) to form compound (VI), yield 81%, bp 129-130° (5 mm), n_D^{20} 1.5715 and compound (VII), yield 82%, bp 134-135° (5 mm), 120° (3 mm), n_D^{20} 1.5725, respectively.

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Investigation of Synthesis and Conversions of Substituted Vinyl Ethers. X. Synthesis and Conversions of Isopropenyl Phenyl Sulfides

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$$(I) + C_2H_5SH \longrightarrow \underset{(VI)}{C_2H_5SCH_2-\underset{CH_3}{\underset{|}{C}}HSC_6H_5}$$

$$(II) + C_2H_5SH \longrightarrow \underset{(VII)}{C_2H_5SCH-\underset{CH_3}{\underset{|}{C}}H_2SC_6H_5}$$

Isopropenyl phenyl sulfide behaves similarly to its analog, isopropenyl phenyl ether. In the presence of catalyst (SO_2) it reacts with ethylmercaptan yielding isopropenyl ethyl sulfide, bp 112-114°, n_D^{20} 1.4755.

$$(I) + C_2H_5SH \xrightarrow{SO_2} \left[\begin{matrix} CH_3 \\ CH_3 \end{matrix}\!\!>\!C\!<\!\!\begin{matrix} SC_2H_5 \\ SC_2H_5 \end{matrix}\right] \longrightarrow CH_2=\underset{CH_3}{\underset{|}{C}}-SC_2H_5 + C_6H_5SH$$

Hydrochlorination of isopropenyl phenyl sulfide yields α-chloroisopropyl phenyl sulfide. Since α-chloroisopropyl phenyl sulfide is an unstable compound, it was converted into tertiary-amyl phenyl sulfide, bp 96-98°

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Investigation of Synthesis and Conversions of Substituted Vinyl Ethers. X. Synthesis and Conversions of Isopropenyl Phenyl Sulfides

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(9 mm), n_D^{20} 1.5387.

$$(I) \xrightarrow{HCl} (CH_3)_2C(Cl)-SC_6H_5 \xrightarrow{RMgBr} (CH_3)_2C(R)SC_6H_5$$

R=C_2H_5, C_3H_7

1,1-Dimethylbutyl phenyl sulfide (yield 19%), bp 83-84° (2 mm), n_D^{20} 1.5312, was synthesized in an analogous way. There are 16 references, 6 Soviet, 6 U.S., 1 U.K., 3 German. The 5 most recent U.S. references are: Tarbell, D. C., Lovett, W. E., J. Am. Chem. Soc., 78, 2263 (1956); Bordwell, F. G., Andersen, H. M., Pitt, B. M., J. Am. Chem. Soc., 76, 1085 (1954); Truce, W. E., Simms, J. A., J. Am. Chem. Soc., 78, 2756 (1956); Truce, W. E., Simms, J. A., Boudakian, M. M., J. Am. Chem. Soc., 78, 695 (1956); Tarbell, D. C., McCall, M. A., J. Am. Chem. Soc., 74, 48 (1952).

Card 5/6

ASSOCIATION: Institute of Organic Chemistry of the Academy of Sciences

Investigation of Synthesis and Conversions of Substituted Vinyl Ethers. X. Synthesis and Conversions of Isopropenyl Phenyl Sulfides

77354
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of the USSR (Institut organicheskoy khimii Akademii nauk SSSR)

SUBMITTED: January 15, 1959

Card 6/6

5.3620

77856
SOV/79-30-2-7/78

AUTHORS: Shostakovskiy, M. F., Gracheva, Ye. P., Kul'bovskaya, N. K.

TITLE: Study in the Field of Synthesis and Conversions of Substituted Vinyl Ethers. XI. Synthesis and Properties of Isopropenyl Alkyl Sulfides

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 383-388 (USSR)

ABSTRACT: The authors synthesized isopropenyl ethyl sulfide, isopropenyl butyl sulfide and isopropenyl propyl sulfide by reacting methylacetylene with mercaptans in an alkaline medium:

$$RSH + CH_3C{\equiv}CH \xrightarrow{KOH} CH_2{=}C(CH_3){-}SR \qquad (1)$$

$R = C_2H_5,\ C_3H_7,\ C_4H_9$.

The reactions were performed using the method described earlier (Zhur. obshchey khim., 28, 1253 (1958)). Experimental conditions are given in Table 1.

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Study in the Field of Synthesis and Conversions of Substituted Vinyl Ethers. XI

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Table 1.
Key to Table 1. (1) Synthesized compound; (2) quantity; (3) mercaptan (in moles); (4) methylacetylene (in moles); (5) KOH (in moles); (6) dioxan (in ml); (7) conditions of reaction; (8) temperature; (9) duration of heating (in hr); (10) yields of reaction products (in %); (11) isopropenyl alkyl sulfide; (12) 1,2-dialkyl-mercaptopropane; (13) isopropenyl ethyl sulfide; (14) isopropenyl propyl sulfide; (15) isopropenyl butyl sulfide.

1	2				7		10	
	3	4	5	6	8	9	11	12
13	1.5	3	0.3	—	170—180°	2	44	9
14	0.47	0.94	0.09	—	110—120	1.5	49	15
15	0.34	0.68	0.068	30	120—130	1.5	51	8

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The pressure in the autoclave varied between 32 and 45 atm. (Dioxan was added to minimize tarring.) By mixing the obtained isopropenyl alkyl sulfides with additional quantities of mercaptan, the 1,2-dialkylmercaptopropanes are obtained (reaction (2)):

$$CH_2=C(CH_3)-SR + RSH \longrightarrow RSCH_2-CH(CH_3)-SR \qquad (2)$$

$R = C_2H_5;\ C_3H_7;\ C_4H_9$

The reaction was exothermic (temperature rose to 50-60°; synthesis of 1,2-diethylmercaptopropane and 1,2-dipropylmercaptopropane). In the case of 1,2-dibutylmercaptopropane and 1-butyl-mercapto-2-ethylmercaptopropane, the mixture had to be heated to 80° in presence of 0.01 g of azoisobutyronitrile. Table 2 gives the yields and physical constants of the synthesized compounds.

Study in the Field of Synthesis and Conversions of Substituted Vinyl Ethers. XI

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Key to Table 2: (1) Name of compound; (2) yield (in %); (3) boiling point (pressure in mm); (4) found; (5) calculated; (6) empirical formula; (7) isopropenyl ethyl sulfide; (8) isopropenyl propyl sulfide; (9) isopropenyl butyl sulfide; (10) 1,2-diethylmercaptopropane; (11) 1,2-dipropylmercaptopropane; (12) 1,2-dibutylmercaptopropane; (13) 1-butylmercapto-2-ethylmercaptopropane.

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Study in the Field of Synthesis and Conversions of Substituted Vinyl Ethers. XI

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Table 2.

1	2	3	n_D^{20}	d_4^{20}	MR_D		4 (%)			6	5 (%)		
					4	5	C	H	S		C	H	S
7	44	114—115° (750)	1.4750	0.8720	32.99	32.86	58.75, 58.92	9.92, 9.89	31.16, 31.07	$C_5H_{10}S$	58.75	9.87	31.38
8	49	47—48 (25)	1.4740	0.8688	37.61	37.48	62.11, 62.13	10.65, 10.57	27.45, 27.55	$C_6H_{12}S$	62.01	10.40	27.57
9	51	66—67 (25)	1.4730	0.8446	42.24	42.10	64.63, 64.58	10.84, 10.95	24.68, 24.81	$C_7H_{14}S$	64.52	10.82	24.60
10	80	112—113 (26)	1.5033	0.9632	50.16	50.37	51.10, 51.10	9.80, 9.82	38.74, 38.58	$C_7H_{16}S_2$	51.18	9.82	39.01
11	90	134—135 (25)	1.4963	0.9408	59.74	59.70	56.42, 56.51	10.57, 10.52	33.17, 33.08	$C_9H_{20}S_2$	56.16	10.48	33.34
12	85	114—115 (3.5)	1.5020	0.9253	69.40	68.84	59.69, 59.70	10.97, 10.93	29.01, 28.96	$C_{11}H_{24}S_2$	59.94	11.0	29.10
13	72	89—90 (3)	1.4965	0.9408	59.74	59.70	56.41, 56.17	10.62, 10.41	33.03, 32.98	$C_9H_{20}S_2$	59.16	10.48	33.34

* In calculation of MR_D the authors have used atomic refraction of sulfur, found for diallyl sulfide by T. S. Prise and D. F. Twiss (J. Chem. Soc., 101,

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1259 (1912)) and equal to 8.04.
**Atomic refraction of sulfur was taken as equal to 7.921 (Vogel, A. I., J. Chem. Soc., 1948, 1820).

In acid medium isopropenyl alkyl sulfides react with mercaptans (after dropwise addition of isopropenyl alkyl sulfide to equimolar quantity of mercaptan containing 5-8 drops of HCl, the mixture was heated to 50° for 5 min and left overnight; it was then neutralized, dried over K_2CO_3, and distilled) by an ionic mechanism, the reaction obeying Markownikoff's (Markovnikov's) rule, yielding 2,2-dialkylmercaptopropanes:

$$CH_2=\underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}-SR + RSH \rightarrow (CH_3)_2C(SR)_2 \qquad (3)$$

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The 2,2-dialkylmercaptopropanes decompose on heating into the initial compounds. Passing hydrogen chloride

through isopropenyl alkyl sulfides at -20° resulted in formation of α-chloroisopropyl alkyl sulfide, which easily decomposes on raising temperature to 0°, giving off HCl and a complex mixture of products. Acid hydrolysis of isopropenyl alkyl sulfides yields acetone as one of the products. Quantitative decomposition of isopropenyl alkyl sulfides and 2,2-dialkylmercaptopropanes by excess of alcoholic solution of mercuric chloride (reaction 5) (with subsequent titration of HCl by NaOH):

$$CH_2=C(CH_3)-SR + HgCl_2 + 2C_2H_5OH \rightarrow RSHgCl + HCl + (CH_3)_2C(OC_2H_5)_2 \quad (5)$$

can be used for estimation of purity of these compounds. In the case of sulfides, the reaction mixture (0.1-0.2 g of sulfide and 5 ml of 20% solution of $HgCl_2$ in alcohol) was heated at 70° in a sealed ampoule for 3 hr, transferred quantitatively into a flask, and

titrated with 0.1N NaOH to methylorange end point. In the case of 2,2-dialkylmercaptopropanes, the reaction mixture (7 ml of $HgCl_2$ solution was used for 0.1-0.2 g sample) was simply left overnight in a stoppered conical flask. There are 3 tables; and 12 references, 2 Soviet, 4 German, 2 U.K., 3 U.S., 1 Polish. The U.S. and U.K. references are: P. I. Wiezewich, L. B. Turner, P. K. Florich, Ind. Eng. Ch., 25, 295 (1933); U.S. Patent 2066191, Ch. A., 31, 1038[4] (1937), Ch. S., 32, 8359 (1938); T. S. Prise, D. F. Twiss, J. Chem. Soc., 101, 1259 (1912); A. I. Vogel, J. Chem. Soc., 1948, 1820; F. L. Cairus, G. L. Evans, A. W. Larchar, B. C. McKusick, J. Am. Chem. Soc., 74, 3988 (1952); T. C. Whitner, E. E. Reid, J. Am. Chem. Soc., 43, 639 (1921).

SUBMITTED: February 20, 1959

80066

S/020/60/132/01/40/064
B011/B126

5.3700(B)

AUTHORS: Shostakovskiy, M. F., Gracheva, Ye. P., Kayutenko, L. A.

TITLE: Synthesis and Conversions of Trialkylsilylethinylvinylalkyl Ethers

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 1, pp. 153-156

TEXT: The object of the authors' work is to study the interaction of ethinylvinylalkyl ethers with trialkylchlorosilanes. The ethers mentioned in the title were synthesized via the organomagnesium derivative, which was produced, not in tetrahydrofuran (as in Refs. 13, 14), but in sulfuric ether (2), (3). Both these reactions take place under mild conditions. The trialkylsilylethinylvinylbutyl ethers that were obtained remind one, because of their chemical properties, of the ethinylvinylalkyl ethers which contain no silicon. Both are easily hydrolized with 2% H_2SO_4. The former have also, however, some peculiarities. The hydrolysis performed to detect their structure has shown that a splitting of the Si-C bond takes place (see scheme). The butin-1-al-4 that is produced by this reaction is isomerized to tetrolaldehyde. Unlike the silicon-free ethinylvinylalkyl ethers, trialkylsilylethinylvinyl ethers are not hydrogenated via $PtO_2 \cdot H_2O$ or via Pd precipitated on calcium sulfate. Their hydrogenation succeeds only via a mixture

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80066

Synthesis and Conversions of Trialkylsilylethinylvinyl-alkyl Ethers

S/020/60/132/01/40/064
B011/B126

of 2% $Pd/CaCO_3$ and 5% Pt/C. Trimethylsilylbutoxy-4-butadiene-1,3 was obtained by a gradual hydrogenation. The latter is condensable with maleic anhydride and forms the adduct (A), from which butylalcohol and trimethylsilanol are split off. Under the conditions of the reaction the latter gives hexamethyldisiloxane. The authors have established that the adduct is a phthalanhydride. The silicon-rich ethinylvinylbutyl ether cannot be converted either by heating with butanol without a catalyst or in the presence of from 1-2% of basic or acid catalyst into trimethylsilylbutin-1-al-4-acetal. There are 1 table and 17 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

PRESENTED: January 8, 1960, by B. A. Kazanskiy, Academician

SUBMITTED: December 24, 1959

Card 2/2

23591
S/062/61/000/005/008/009
B118/B220

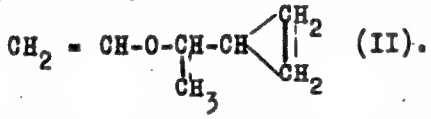
15.8102 2209

AUTHORS: Shostakovskiy, M. F., Gracheva, Ye. P., Meshcheryakov, A. P., and Glukhovtsev, V. G.

TITLE: Polymerization of the vinyl ether of methyl cyclopropyl carbinol

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 5, 1961, 924 - 927

TEXT: In Ref. 1 (B. A. Zakharov et al., Dokl. AN SSSR, 122, no. 5, 814 (1958)), it has been stated that the double bond of the vinyl ethers has an increased nucleophilic character which manifests itself in various addition reactions, transformations, and especially in the polymerization reaction. For the study of the conditions of polymerization of the compounds $CH_2 = CHOR$ (I), the vinyl ether of methyl cyclopropyl carbinol is of special interest:



(II).

According to the rule of Markovnikov, the cyclopropyl group of this ether,

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Polymerization of the...

as possible carrier of the propenyl group, is able to add various polar compounds. Moreover, this ether may be of interest as test substance for the synthesis of different polymers in the polymerization and copolymerization reactions. The present paper describes the polymerization of the vinyl ether of methyl cyclopropyl carbinol in the presence of the initiators $FeCl_3$ and azonitrile isobutyric acid under optimum conditions for the polymerization of the vinyl alkyl ethers. It has been found that compound (II) shows higher reactivity during polymerization in the presence of a 5 % solution of iron perchloride (in dioxane) than vinyl alkyl ethers (I) under the same conditions. First of all, this is evident from the fact that the polymerization of the ether (II) begins at 0°C and the highest yield in polymer is obtained at a temperature of -17 to -20°C whereas other vinyl alkyl ethers polymerize at boiling temperature only. The reason for such diverging temperatures of polymerization is the different stability of the ozonium complexes of these compounds (I, II):

(III) $CH_2 = CH\text{-}OR \cdots H(FeCl_3OH)$

$CH_2 = CH\text{-}O\text{-}CH(CH_3)\text{-}CH(CH_2)_2 \cdots H(FeCl_3OH)$ (IV)

Polymerization of the...

Evidently, complex (IV) is of lower stability; its decomposition is effected at a low temperature resulting also in the formation of a polymer at lower temperature. The use of azonitrile isobutyric acid as initiator instead of $FeCl_3$ did not give any results. There are 3 Soviet-bloc references.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry im. N. D. Zelinskiy, Academy of Sciences USSR)

SUBMITTED: October 12, 1960

Card 3/3

25039
S/062/61/000/006/001/010
B118/B220

5.3400

AUTHORS: Shorygin, P. P., Shkurina, T. N., Shostakovskiy, M. F., and Gracheva, Ye. P.

TITLE: Spectra and structure of vinyl ethers

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 6, 1961, 1011 - 1015

TEXT: A study has been made of the influence of various functional groups on the properties of vinyl compounds and on the state of the double bond C=C. In the case of vinyl ethers, the influence exerted by the alkoxy group upon the double bond becomes evident in chemical properties, such as increased reactivity in addition reactions, in hydrolysis, and in polymerization and copolymerization processes. Not much material is available in the literature with regard to the influence of the alkoxy group upon the strength of the double bond C=C and upon the optical properties. The present paper deals with studies concerning the Raman spectra and the ultraviolet absorption spectra in vacuo for a series of vinyl ethers containing alkyl, naphthene and aromatic radicals. Most vinyl ethers

Spectra and structure of...

have several lines in the frequency range of the stretching vibrations C=C. The splitting depends on the branchings of the alkyl group and on the presence of an α-substituent. The influence of temperature upon the intensity of the lines $\sim$1610 and $\sim$1640 cm^{-1} of vinyl butyl ether indicates their relation to the two rotational isomers. The influence of the group OAlk on $\omega_{C=C}$ may be regarded qualitatively as a tendency to reduce the frequency. The wavelength of the first absorption band and the intensity of the C=C line in the Raman spectra are greater for vinyl ethers than for alkenes of similar structure. The influence of solutions and temperature on the structure of the C=C band was studied. Thus, the geometric configuration of the molecules of vinyl ethers may be important to both the physical and chemical properties. The Raman spectra were taken with the ИСП-67 (ISP-67) spectrograph with the Hg line 4358Å. The absorption spectra were taken with spectrophotometers of types СФ-4 (SF-4) and СП-41 (SP-41) with the assistance of V. A. Petukhov. There are 2 figures, 1 table, and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The 1 reference to English-language publication reads as follows: Y. Mikawa, Bull. Chem. Soc. Japan 29, 110 (1956).

Card 2/6

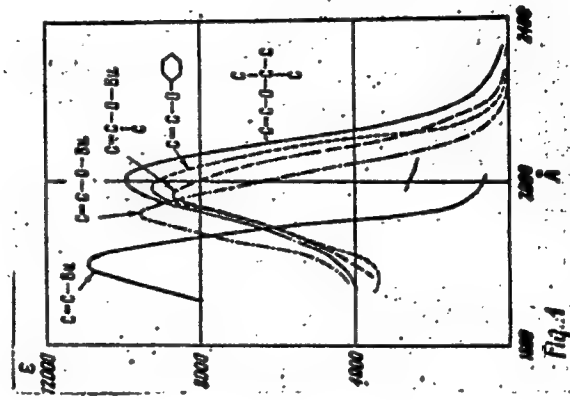
25039
S/062/61/000/006/001/010
B118/B220

Spectra and structure of...

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR
(Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: June 1, 1959

Fig. 1: Ultraviolet absorption spectra of octene-1 and vinyl ethers (solutions in heptane).
Legend: bu-butyl group;
-⟨⟩-cyclohexyl group.



Card 3/6

GASTILOVICH, Ye.A.; SHIGORIN, D.N.; GRACHEVA, Ye.P.; CHEKULAYEVA, I.A.; SHOSTAKOVSKIY, M.F.

Investigating the nature of the complexes and derivatives of acetylene by the method of infrared absorption spectra. Opt.i spektr. 10 no.5:595-599 My '61. (MIRA 14:8)
(Acetylene—Spectra)

SHOSTAKOVSKIY, M.F.; GRACHEVA, Ye.P.; KUL'BOVSKAYA, N.K.

Methods for synthesizing and properties of substituted vinyl ethers and substituted vinyl sulfides. Usp. khim. 30 no. 4:493-516 Ap '61. (MIRA 14:4)

1. Institut organicheskoy khimii imeni N.D. Zelinskogo AN SSSR.
(Sulfides) (Ethers)

28676
S/020/61/140/002/021/023
B130/B110

5.4130

AUTHORS: Shigorin, D. N., Smirnova, V. I., Zhuravleva, G. S., Gracheva, Ye. P., and Shostakovskiy, M. F., Corresponding Member AS USSR

TITLE: Epr spectra of γ-irradiated acetylene and its derivatives

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 140, no. 2, 1961, 419-422

TEXT: To determine the relationship between the structure of the initial molecules and the structure of the resulting radical, the authors studied the epr spectra of γ-irradiated acetylene, methyl acetylene, methyl deutero acetylene, ethyl- and butyl acetylene, as well as phenyl- and methyl-phenyl acetylene at 77°K. The compounds were irradiated in special-glass ampuls giving no epr spectrum with the used dose of γ-radiation. Before the tests, the ampuls were evacuated to 10^{-3} mm Hg. Irradiation was conducted with Co^{60}. A superheterodyne radiospectroscope was used for taking the epr spectra. The magnetic field was calibrated with the epr spectra of the pyroxylamine disulfone ion, $[NO(SO_3)_2^{2-}]$ in

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Epr spectra of γ-irradiated ...

chloroform. Copper chloride monocrystals were used for determining the concentration of the radicals obtained. The relative error when determining the yield of radicals was ~20%. Test results are given in Tables 1 and 2. The spectrum of deutero methyl acetylene obtained from heavy water- and Li-methyl acetylenide suggests an interaction of the unpaired electron in the radical with the protons of the CD and CH_2 groups. The symmetric triplet of methyl-phenyl acetylene may be explained by: (1) the interaction of the unpaired electron with the protons of the methylene group in the radical $\bigcirc$ C≡C-$\dot{C}H_2$, or (2) by the fact that this spectrum has to be ascribed to the radical of the phenyl ring $\dot{A}_r$-C≡C-H. A comparison with the spectra of benzene and methyl-phenyl acetylene with benzene indicates that explication (1) is applicable. An intensive epr spectrum of C_2H_2 is only obtained by high-dose irradiation, which suggests a considerable redistribution of energy in the system. This is even more distinct with phenyl acetylene which gives no epr spectra with high-dose irradiation either. The redistribution of the energy absorbed may be explained by the formation of complexes between the molecules. In fact, polymeric compounds were found on the ampul walls

during the experiments. There are 1 figure, 2 tables, and 4 references: 2 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: C. P. Poole, S. Anderson, J. Chem. Phys., 31, no. 2, 346 (1959); R. West, Ch. Kreinzel, J. Am. Chem. Soc., 84, no. 4, 765 (1961).

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: May 25, 1961

Table 1. Integral intensity of γ-irradiation $\sim 10^7$ rad.
Legend: (a) initial compounds (boiling point, °C), (b) radical presumed, (c) number of lines, (d) total width, oersteds, (e) the number of lines due to superposition with the spectrum of CH_3-C≡C-H cannot be determined.

S/186/62/004/003/022/022
E075/E436

AUTHORS: Abel'skaya, N.B., Gracheva, Ye.G., Yershova, Z.V., Zverev, V.S., Maslovskaya, V.V., Rudaya, L.Ya.

TITLE: Preparation of long-lived Bi^{210}

PERIODICAL: Radiokhimiya, v.4, no.3, 1962, 377-378

TEXT: To confirm the investigations with isomer Bi^{210}, reported by L.I.Rusinov, it was essential to obtain a sample of Bi containing a large quantity of the isomer and a minimum quantity of other radioactive admixtures. The metallic Bi subjected to irradiation was thoroughly purified from Po and the elements activated by neutrons Zn, Ag, Cd, Co, Sr, Sb, Se, Te. A sample of Bi enriched in Bi^{210} was obtained from the purified Bi.

SUBMITTED: May 29, 1961

Card 1/1

SHOSTAKOVSKIY, M.F.; KUL'BOVSKAYA, N.K.; GRACHEVA, Ye.P.; LABA, V.I.; YAKUSHINA, L.M.

Synthesis and conversions of substituted vinyl ethers. Part 12: Vinylation of alkyl thiols by tert-butylacetylene. Zhur.ob.khim. 32 no.3:709-714 Mr '62. (MIRA 15:3)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Thiols) (Hexyne)

SONDAK, V.A.; GRACHEVA, Ye.P.; GLADYSHEV, B.N.; SUSLIKOV, V.I.

Protective action of phytolipopolysaccharides and VB-2 against the effects of radiation. Dokl. AN SSSR 146 no.4:925-928 O '62. (MIRA 15:11)

1. Institut biologicheskoy fiziki AN SSSR i Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR. Predstavleno akademikom A.I. Oparinym.

(LIPOPOLYSACCHARIDES--PHYSIOLOGICAL EFFECT)
(VINYL COMPOUND POLYMERS--PHYSIOLOGICAL EFFECT)
(RADIATION PROTECTION)

L 12931-63 EWT(1)/EWT(m)/BDS ASD/AFFTC AR/K

ACCESSION NR: AP3003937 S/0205/63/003/004/0587/0594

58
56

AUTHOR: Sondak, V. A.; Gracheva, Ye. P.; Glady*shev, B. N.; Suslikov, V. I.

TITLE: Effect of phytolipopolysaccharides and preparation VB-2 on the hemogenesis of irradiated animals 19

SOURCE: Radiobiologiya, v. 3, no. 4, 1963, 587-594

TOPIC TAGS: radiation sickness, antiradiation preparation, polysaccharide, phytolipopolysaccharide, VB-2, hemogenesis, vinylbutyl ether polymer

ABSTRACT: Lipopolysaccharides from the leaves of Vitis vinifera and Thea sinensis have been tested on white male rats for their antiradiation qualities. The phytolipopolysaccharides used did not have the ability to stimulate fibrinolysis. To protect the intestinal mucosa from radiation damage, a VB-2 preparation (polymer of vinylbutyl ether) was applied. An M-2 computer was employed to tabulate statistical results. It was concluded that 1) phytolipopolysaccharides applied before irradiation possess definite prophylactic properties and when used in conjunction with a VB-2 preparation exert some protective function after irradiation; 2) a positive influence from these preparations was also manifested in the

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L 12931-63
ACCESSION NR: AP3003937

blood -- dynamic changes of erythrocytes, reticulocytes, and thrombocytes after irradiation were more favorable in the animals treated with phytolipopolysaccharides and VB-2; 3) phytolipopolysaccharides, unlike bacterial lipopolysaccharides, exert a protective influence on hemogenesis against penetrating radiation, stimulating erythro-thrombocytopoiesis without any persistent and pronounced change in cells of the leucocytic order. Orig. art. has: 2 tables and 1 figure.

ASSOCIATION: Institut biologicheskoy fiziki AN SSSR (Institute of Biological Physics, AN SSSR); Institut organicheskoy khimii im. N. D. Zelinskogo AN SSSR, Moscow (Institute of Organic Chemistry, AN SSSR)

SUBMITTED: 11Jan63 DATE ACQ: 15Aug63 ENCL: 00

SUB CODE: AM NO REF SOV: 005 OTHER: 007

Card 2/2

GRACHEVA, Ye.P.; LABA, V.I.; KUL'BOVSKAYA, N.K.; SHOSTAKOVSKIY, M.F.

Synthesis and transformations of substituted vinyl ethers. Part 13: Stereochemistry of the reaction of addition of thiols to tert-butylacetylene. Zhur. ob. khim. 33 no.8:2493-2501 Ag '63. (MIRA 16:11)

1. Institut organicheskoy khimii AN SSSR.

LABA, V.I.; GRACHEVA, Ye.P.

Homolytic 1,2-rearrangement of pinacolone mercaptoles. Izv. AN SSSR. Ser.khim. no.3:548-555 Mr '64. (MIRA 17:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

GRACHEVA, Ye.P.; LABA, V.I.; SHOSTAKOVSKIY, M.F.

Synthesis and transformations of substituted vinyl ethers. Part 14: Synthesis of α-tert-butylvinylalkyl sulfides and some of their properties. Zhur. ob. khim. 33 no.8:2501-2509 Ag '63. (MIRA 16:11)

1. Institut organicheskoy khimii AN SSSR.

ACCESSION NR: AP4019525 S/0076/64/038/002/0469/0471

AUTHOR: Smirnova, V. I.; Zhuravleva, T. S.; Shigorin, D. N.; Gracheva, Ye. P.; Shostakovskiy, M. F.

TITLE: EPR spectra of some di-substituted acetylenes upon exposure to gamma rays and to light

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 2, 1964, 469-471

TOPIC TAGS: methylphenylacetylene structure, ethylphenylacetylene structure, dimethylacetylene structure, electron paramagnetic resonance, acetylene, alkyl radical, acrylic compound, methyl, EPR

ABSTRACT: This is a continuation of a work by the same authors (AN SSSR, Dokl., 140, 149, 1961) where they described how a number of acetylenes of the $RC \equiv CH$ type (where R is an alkyl radical) upon exposure to gamma radiation form radicals where the unpaired electron is delocalized by the triple bond over the whole molecule. The present work transfers the above study to $Ar - C \equiv C - R$ arylic compounds of a different structure. The object of the study were: methylphenyl-acetylene, its deuterium tagged form, ethylphenylacetylene and dimethylacetylene.

Card 1/2

ACCESSION NR: AP4019525

UV radiation was provided by the SVDSh - 1000 lamp. Gamma doses were 2 to 80 m. rad. Using the EPR method, the structure of radicals formed by gamma and light radiation of the above compounds was determined; the radicals are formed by tearing off a hydrogen atom from the methyl or methylene group. In these radicals the free electron is basically localized in the R group, whereas in the R - $\dot{C}$ - CH_2 radical (like the propynyl radical $CH_2 = C = \dot{C}H$.) the unpaired electron is delocalized by the triple bond over the whole molecule. Orig. art. has: 5 figures, 2 formulas, 1 table.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physics and Chemistry Institute)

SUBMITTED: 08Feb63 DATE ACQ: 31Mar64 ENCL: 00

SUB CODE: GC, GP NO REF SOV: 001 OTHER: 000

Card 1 2/2

LABA, V.I.; GRACHEVA, Ye.P.

Stereospecific cleavage of sulfinic acids from 1,2-disulfones.
Dokl. AN SSSR 155 no.6:1357-1360 Ap '64. (MIRA 17:4)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
Predstavleno akademikom B.A.Kazanskim.

[illegible], V.Z.; GRECHEVA, Ye.P.

Mercaptoles of pinacolin. Zhur. org. khim. 1 no.4:732-791 Ap '65. (MIRA 18:11)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR.

VASIL'YEVA, N.G., inzh.; GRACHEVA, Ye.V., inzh.

Economic efficiency of the automation of the production of packaged ice cream. Khol.tekh. 40 no.6:7-8 N-D '63. (MIRA 17:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti.

ORLOV, Pavel Mikhaylovich, doktor tekhn. nauk, prof.; GRACHEVA, V.S., red.; SHARUPICH, S.G., spets. red.; DEYEVA, V.M., tekhn. red.

[Course in geodesy]Kurs geodezii. Izd.3., perer. Moskva, Sel'khozizdat, 1962. 383 p. (MIRA 16:1)

(Surveying)